

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Patent of: Jeff Fries et al.  
Patent No.: 7,254,467 B2  
Issued: August 7, 2007  
Confirmation No.: 7577  
For: DIGITAL TRAIN SYSTEM FOR AUTOMATICALLY  
DETECTING TRAINS APPROACHING A CROSSING

October 6, 2009

**REQUEST FOR EXPEDITED ISSUANCE**  
**OF CERTIFICATE OF CORRECTION UNDER 37 CFR 1.322**

TO THE COMMISSIONER FOR PATENTS,

SIR:

On studying the above-identified patent, the following errors were found (these errors are also noted on the attached form PTO/SB/44):

On the front cover of the patent, Section 75, Inventors:

"Robert M. Morris, Blue Springs, MO (US)"

should read

- - - Robert M. Morse, Blue Springs, MO (US) - - -.

REMARKS

In accordance with 37 CFR 1.322, a copy of the Declaration and Power of Attorney filed December 22, 2003, a copy of the Corrective Assignment recorded April 14, 2009, a copy of the Notice of Allowance dated December 29, 2006, and a copy of the Issue Fee Transmittal dated March 20, 2007, are attached.

Since some of the errors shown above were made by Applicants, payment of the \$100.00 fee required under Rule 1.323 will be submitted with this filing. The Commissioner is also authorized to charge any underpayment or credit any overpayment to Deposit Account No. 19-1345.

We respectfully request that a certificate of correction be issued.

Respectfully submitted,

/Frank R. Agovino/

Frank R. Agovino, Reg. No. 27,416  
SENNIGER POWERS LLP  
100 North Broadway, 17th Floor  
St. Louis, Missouri 63102  
(314) 231-5400

FRA/clp  
\*Enclosures

**DECLARATION AND POWER OF ATTORNEY**

**REGULAR OR DESIGN APPLICATION**

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

DIGITAL TRAIN SYSTEM FOR AUTOMATICALLY DETECTING TRAINS  
APPROACHING A CROSSING

the specification of which:

(check one)

☒ is attached hereto

☐ was filed on \_\_\_\_\_ as Application Serial No.

\_\_\_\_\_, and was amended on \_\_\_\_\_.

☐ was described and claimed in PCT International Application  
No. \_\_\_\_\_, filed on \_\_\_\_\_ and as amended  
under PCT Article 19 on \_\_\_\_\_, if any.

**ACKNOWLEDGMENT OF REVIEW OF PAPERS AND DUTY OF CANDOR**

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations §1.56.

### PRIORITY CLAIM

I hereby claim foreign priority benefits under Title 35, United States Code, §119 (a) - (d) or §365(b) of any foreign application for patent or inventor's certificate, or §365(a) of any PCT application which designates at least one country other than the United States of America, listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

#### Priority Claimed

(Number)	(Country)	(Day/Month/Year Filed)
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(Number)	(Country)	(Day/Month/Year Filed)
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(Number)	(Country)	(Day/Month/Year Filed)
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#### Priority Not Claimed

**ANY FOREIGN APPLICATION(S), ON THE SAME SUBJECT MATTER WHICH HAS  
A FILING DATE EARLIER THAN THE EARLIEST APPLICATION FROM WHICH  
PRIORITY IS CLAIMED**

(Number)	(Country)	(Day/Month/Year Filed)
----------	-----------	------------------------

### CLAIM FOR BENEFIT OF PROVISIONAL APPLICATION(S)

I hereby claim the benefit under Title 35, United States Code, §119(e) of any United States provisional application(s) listed below.

60/447,195

(Application Number)

02/13/2003

(Filing Date)

(Application Number)

(Filing Date)

**CLAIM FOR BENEFIT OF EARLIER U.S. APPLICATION(S)  
UNDER 35 U.S.C. 120**

(complete this part only if this is a divisional,  
continuation or CIP application)

I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s), or §365(c) of any PCT international application designating the United States of America, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code §112, I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, §1.56 which became available between the filing date of the prior application and the national or PCT International filing date of this application:

(Serial No.)                      (Filing Date)                      (Status)

(Serial No.)                      (Filing Date)                      (Status)

**POWER OF ATTORNEY**

I hereby appoint the following attorneys/agents to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith: Donald G. Leavitt (17,626), John K. Roedel, Jr. (25,914), Michael E. Godar (28,416), Edward J. Hejlek (31,525), William E. Lahey (26,757), Richard G. Heywood (18,224), Frank R. Agovino (27,416), Kurt F. James (33,716), Paul I. J. Fleischut (35,513), Vincent M. Keil (36,838), Robert M. Evans, Jr. (36,794), Robert M. Bain (36,736), Kathleen M. Petrillo (35,076), Richard L. Bridge (40,529), Christopher M. Goff (41,785), Derrick E. Allen (43,468), Michael G. Munsell (43,820), Anthony R. Kinney (44,834), Brian P. Klein (44,837), Donald W. Tuegel (45,424), Steven M. Ritchey (46,321), Kathryn J. Doty (40,593), James J. Barta, Jr. (47,409), James E. Davis (47,516), Richard A. Schuth (47,929), Jennifer E. Hoekel (48,330), Timothy B. McBride (47,781), Andrew N. Claerbout (50,202), James D. Harper (51,781), Jeffrey S. Ellsworth (51,650), Patricia K. Fitzsimmons (52,894), Kofi Adzamlı (52,545), Andrew C. Wegman (54,530), Bradley S. Schammel (54,667) and Brian G. Panka (53,430), all of the law firm of SENNIGER, POWERS, LEAVITT & ROEDEL, One Metropolitan Square, 16th Floor, St. Louis, Missouri 63102.

Send Correspondence To:

Direct Telephone Calls To:

Customer Number: 000321

Frank R. Agovino  
(314) 231-5400

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Full name of sole or first inventor Jeff Fries

Inventor's signature *Jeff Fries* Date 12/12/03  
Residence Kansas City, Missouri Citizenship US  
Post Office address 427 East 70th Terrace, Kansas City MO 64131

Full name of second joint inventor Roger Fitz

Second inventor's signature *Roger Fitz* Date 12-12-03  
Residence Lee's Summit, Missouri Citizenship US  
Post Office address 1529 NE Neawanna Drive, Lee's Summit MO 64086

Full name of third joint inventor Robert M. Morse

Third inventor's signature *Robert M. Morse* Date 12/12/03  
Residence Blue Springs, Missouri Citizenship US  
Post Office address 921 NE Sunnyside Lane, Blue Springs, MO 64014



**UNITED STATES PATENT AND TRADEMARK OFFICE**

UNDER SECRETARY OF COMMERCE FOR INTELLECTUAL PROPERTY AND  
DIRECTOR OF THE UNITED STATES PATENT AND TRADEMARK OFFICE



\*500634647\*

APRIL 16, 2009

PTAS

SENNIGER POWERS LLP  
100 NORTH BROADWAY, 17TH FLOOR  
ST. LOUIS, MO 63102

UNITED STATES PATENT AND TRADEMARK OFFICE  
NOTICE OF RECORDATION OF ASSIGNMENT DOCUMENT

THE ENCLOSED DOCUMENT HAS BEEN RECORDED BY THE ASSIGNMENT DIVISION OF THE U.S. PATENT AND TRADEMARK OFFICE. A COMPLETE MICROFILM COPY IS AVAILABLE AT THE ASSIGNMENT SEARCH ROOM ON THE REEL AND FRAME NUMBER REFERENCED BELOW.

PLEASE REVIEW ALL INFORMATION CONTAINED ON THIS NOTICE. THE INFORMATION CONTAINED ON THIS RECORDATION NOTICE REFLECTS THE DATA PRESENT IN THE PATENT AND TRADEMARK ASSIGNMENT SYSTEM. IF YOU SHOULD FIND ANY ERRORS OR HAVE QUESTIONS CONCERNING THIS NOTICE, YOU MAY CONTACT THE EMPLOYEE WHOSE NAME APPEARS ON THIS NOTICE AT 571-272-3350. PLEASE SEND REQUEST FOR CORRECTION TO: U.S. PATENT AND TRADEMARK OFFICE, MAIL STOP: ASSIGNMENT SERVICES BRANCH, P.O. BOX 1450, ALEXANDRIA, VA 22313.

RECORDATION DATE: 04/14/2009 ✓

REEL/FRAME: 022542/0287 ✓  
NUMBER OF PAGES: 8

BRIEF: CORRECTIVE ASSIGNMENT TO CORRECT THE SPELLING OF THE LAST NAME OF INVENTOR ROBERT M. MORRIS PREVIOUSLY RECORDED ON REEL 014844 FRAME 0013. ASSIGNOR(S) HEREBY CONFIRMS THE CORRECT SPELLING OF THE NAME OF THE INVENTOR IS: ROBERT M. MORSE.  
DOCKET NUMBER: GETS 5319.1 ✓

ASSIGNOR:  
FRIES, JEFF ✓

DOC DATE: 12/12/2003 ✓

ASSIGNOR:  
FITZ, ROGER ✓

DOC DATE: 12/12/2003 ✓

ASSIGNOR:  
MORSE, ROBERT M. ✓

DOC DATE: 12/12/2003 ✓

ASSIGNEE:  
GENERAL ELECTRIC COMPANY ✓  
ONE RIVER ROAD  
SCHENECTADY, NEW YORK 12301

K11

TO: SENNIGER POWERS LLP COMPANY: 100 NORTH BROADWAY, 17TH FLOOR

022542/0287 PAGE 2

SERIAL NUMBER: 10743591 ✓

FILING DATE: 12/22/2003 ✓

PATENT NUMBER: 7254467 ✓

ISSUE DATE: 08/07/2007 ✓

TITLE: DIGITAL TRAIN SYSTEM FOR AUTOMATICALLY DETECTING TRAINS APPROACHING  
A CROSSING ✓

MARY BENTON, EXAMINER  
ASSIGNMENT SERVICES BRANCH  
PUBLIC RECORDS DIVISION



## PATENT ASSIGNMENT

Electronic Version v1.1  
 Stylesheet Version v1.1

04/14/2009  
 500834647

SUBMISSION TYPE:	CORRECTIVE ASSIGNMENT										
NATURE OF CONVEYANCE:	Corrective Assignment to correct the spelling of the last name of inventor Robert M. MORRIS previously recorded on Reel 014844 Frame 0013. Assignor(s) hereby confirms the correct spelling of the name of the inventor is: Robert M. MORSE.										
CONVEYING PARTY DATA											
<table border="1"> <thead> <tr> <th>Name</th> <th>Execution Date</th> </tr> </thead> <tbody> <tr> <td>Jeff Fries</td> <td>12/12/2003</td> </tr> <tr> <td>Roger Fitz</td> <td>12/12/2003</td> </tr> <tr> <td>Robert M. Morse</td> <td>12/12/2003</td> </tr> </tbody> </table>		Name	Execution Date	Jeff Fries	12/12/2003	Roger Fitz	12/12/2003	Robert M. Morse	12/12/2003		
Name	Execution Date										
Jeff Fries	12/12/2003										
Roger Fitz	12/12/2003										
Robert M. Morse	12/12/2003										
RECEIVING PARTY DATA											
<table border="1"> <tr> <td>Name:</td> <td>General Electric Company</td> </tr> <tr> <td>Street Address:</td> <td>One River Road</td> </tr> <tr> <td>City:</td> <td>Schenectady</td> </tr> <tr> <td>State/Country:</td> <td>NEW YORK</td> </tr> <tr> <td>Postal Code:</td> <td>12301</td> </tr> </table>		Name:	General Electric Company	Street Address:	One River Road	City:	Schenectady	State/Country:	NEW YORK	Postal Code:	12301
Name:	General Electric Company										
Street Address:	One River Road										
City:	Schenectady										
State/Country:	NEW YORK										
Postal Code:	12301										
PROPERTY NUMBERS Total: 1											
<table border="1"> <thead> <tr> <th>Property Type</th> <th>Number</th> </tr> </thead> <tbody> <tr> <td>Patent Number:</td> <td>7254487</td> </tr> </tbody> </table>		Property Type	Number	Patent Number:	7254487						
Property Type	Number										
Patent Number:	7254487										
CORRESPONDENCE DATA											
<p>Fax Number: (314)231-4342  <i>Correspondence will be sent via US Mail when the fax attempt is unsuccessful.</i>          Phone: 314-231-5400          Email: <a href="mailto:uspatents@senniger.com">uspatents@senniger.com</a>          Correspondent Name: SENNIGER POWERS LLP          Address Line 1: 100 North Broadway, 17th Floor          Address Line 4: St. Louis, MISSOURI 63102</p>											
ATTORNEY DOCKET NUMBER:	GETS 5310.1										
NAME OF SUBMITTER:	Frank R. Agovino										

CH S-10.00 7254467

TO: SENNIGER POWERS LLP COMPANY: 100 NORTH BROADWAY, 17TH FLOOR

Total Attachments: 6

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ASSIGNMENT

**WHEREAS,** We, Jeff Fries of Kansas City, Missouri, Roger Fitz of Lee's Summit, Missouri and Robert M. Morse of Blue Springs, Missouri, have invented an improvement in DIGITAL TRAIN SYSTEM FOR AUTOMATICALLY DETECTING TRAINS APPROACHING AT A CROSSING (File 133197/GETS 5319.1) and have executed an application for a United States patent based thereon simultaneously herewith;

**AND, WHEREAS,** General Electric Company of One River Road, Schenectady, New York 12301, a corporation of the State of New York (hereinafter referred to as "ASSIGNEE") is desirous of acquiring certain rights thereunder;

**NOW, THEREFORE,** for one dollar and other good and valuable consideration, receipt of all of which is hereby acknowledged, we have agreed to and do hereby sell, assign and transfer unto said ASSIGNEE the entire right, title and interest in and throughout the United States of America (including its territories and dependencies) and all countries foreign thereto in and to said invention, said United States application, any other United States applications (including provisional, non-provisional, divisional, continuing, or reissue applications) based in whole or in part on said United States application or in whole or in part on said invention, any foreign applications based in whole or in part on any of the aforesaid United States applications or in whole or in part on said invention, and any and all patents

(including extensions thereof) of any country which have been or may be granted on any of the aforesaid applications or on said invention or any part thereof;

**TO BE HELD AND ENJOYED** by said ASSIGNEE, its successors and assigns, as fully and entirely as the same would have been held and enjoyed by us had no sale and assignment of said interest been made;

**AND We** hereby authorize and request the Commissioner of Patents of the United States of America to issue any and all United States patents which may be granted upon said United States applications or any of them, or upon said invention or any part thereof, to said ASSIGNEE;

**AND We** hereby jointly and severally agree for ourselves and for our respective heirs, executors and administrators, to execute without further consideration any further lawful documents and any further assurances, and any provisional, non-provisional, divisional, continuing, reissue, or other applications for patents of any country, that may be deemed necessary by said ASSIGNEE fully to secure to said ASSIGNEE its interest as aforesaid in and to said invention or any part thereof, and in and to said several patents or any of them;

**AND We** hereby jointly and severally covenant for ourselves and our respective legal representatives that we have granted no right or license to make, use or sell said invention, to anyone

except said ASSIGNEE, that prior to the execution of this deed our right, title and interest in said invention had not been, otherwise encumbered, and that we have not executed and will not execute any instrument in conflict herewith.

IN WITNESS WHEREOF, we have hereunto set our hands.

Jeff Fries  
Jeff Fries

12/12/03  
Date

ACKNOWLEDGMENT

STATE OF Missouri )  
COUNTY OF Lafayette )

On this 12<sup>th</sup> day of Dec 2003, before me, a Notary Public, personally appeared JEFF FRIES to me known to be the person described in and who executed the foregoing assignment and acknowledged that he executed same as his free act and deed.

IN TESTIMONY WHEREOF, I have hereunto set my hand and seal the date and year last above written.

M. Kathryn Gaines  
Notary Public M. Kathryn Gaines

My Commission Expires:

20 Mar 2004



M. KATHRYN GAINES  
NOTARY PUBLIC - STATE OF MISSOURI  
LAFAYETTE COUNTY  
3 My Commission Expires: Mar. 20, 2004

Roger Fitz  
Roger Fitz

12-12-03  
Date

STATE OF Missouri )  
COUNTY OF Lafayette )

On this 12<sup>th</sup> day of Dec 2003, before me, a Notary Public, personally appeared ROGER FITZ to me known to be the person described in and who executed the foregoing assignment and acknowledged that he executed same as his free act and deed.

IN TESTIMONY WHEREOF, I have hereunto set my hand and seal and the date and year last above written.

M. Kathryn Gaines  
Notary Public M. Kathryn Gaines

My Commission Expires:

20 Mar 2004



KATHRYN GAINES  
STATE OF MISSOURI  
LAFAYETTE COUNTY  
My Commission Expires: Mar. 20, 2004

Robert M. Morse  
Robert M. Morse

12 December 2003  
Date

STATE OF Missouri )

COUNTY OF Lafayette )

On this 12<sup>th</sup> day of Dec 2003, before me, a Notary Public, personally appeared ROBERT M. MORSE to me known to be the person described in and who executed the foregoing assignment and acknowledged that he executed same as his free act and deed.

IN TESTIMONY WHEREOF, I have hereunto set my hand and seal and the date and year last above written.

M. Kathryn Gaines  
Notary Public M. Kathryn Gaines

My Commission Expires:

20 Mar 2004



M. KATHRYN GAINES  
NOTARY PUBLIC - STATE OF MISSOURI  
LAFAYETTE COUNTY  
My Commission Expires 03/20/2004



## UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

## NOTICE OF ALLOWANCE AND FEE(S) DUE

321 7590 12/29/2006  
SENNIGER POWERS  
ONE METROPOLITAN SQUARE  
16TH FLOOR  
ST LOUIS, MO 63102

EXAMINER	
NGUYEN, THU V	
ART UNIT	PAPER NUMBER
3661	

DATE MAILED: 12/29/2006

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/743,591	12/22/2003	Jeff Fries	133197/GETS 5319.1	7577

TITLE OF INVENTION: DIGITAL TRAIN SYSTEM FOR AUTOMATICALLY DETECTING TRAINS APPROACHING A CROSSING

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1400	\$300	\$0	\$1700	03/29/2007

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. **PROSECUTION ON THE MERITS IS CLOSED.** THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN **THREE MONTHS** FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. **THIS STATUTORY PERIOD CANNOT BE EXTENDED.** SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

## HOW TO REPLY TO THIS NOTICE:

## I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

- A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.
- B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

- A. Pay TOTAL FEE(S) DUE shown above, or
- B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

**IMPORTANT REMINDER:** Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.



# **PART B - FEE(S) TRANSMITTAL**

Complete and send this form, together with applicable fee(s), to: **Mail** Mail Stop ISSUE FEE  
**Commissioner for Patents**  
**P.O. Box 1450**  
**Alexandria, Virginia 22313-1450**  
**or Fax** (571)-273-2885

**INSTRUCTIONS:** This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as appropriate unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

321 7590 12/29/2006  
**SENNIGER POWERS**  
**ONE METROPOLITAN SQUARE**  
**16TH FLOOR**  
**ST LOUIS, MO 63102**

**Certificate of Mailing or Transmission**  
 I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (371) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/743,591	12/22/2003	Jeff Fries	133197/GETS 5319.1	7577

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APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1400	\$300	\$0	\$1700	03/29/2007

EXAMINER	ART UNIT	CLASS-SUBCLASS
NGUYEN, THU V	3661	701-019000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.  
☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. Use of a Customer Number is required.

2. For printing on the patent front page, list

- (1) the names of up to 3 registered patent attorneys or agents OR, alternatively,  
 (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 \_\_\_\_\_  
 2 \_\_\_\_\_  
 3 \_\_\_\_\_

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.111. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

- ☐ Issue Fee  
☐ Publication Fee (No small entity discount permitted)  
☐ Advance Order - # of Copies \_\_\_\_\_

4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)

- ☐ A check is enclosed.  
☐ Payment by credit card. Form PTO-2038 is attached.  
☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number \_\_\_\_\_ (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature \_\_\_\_\_ Date \_\_\_\_\_  
 Typed or printed name \_\_\_\_\_ Registration No. \_\_\_\_\_

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
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Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/743,591

12/22/2003

Jeff Fries

133197/GETS 5319.1

7577

321

7590

12/29/2006

SENNIGER POWERS  
ONE METROPOLITAN SQUARE  
16TH FLOOR  
ST LOUIS, MO 63102

EXAMINER

NGUYEN, THU V

ART UNIT

PAPER NUMBER

3661

DATE MAILED: 12/29/2006

## Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)

(application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 343 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 343 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

# Notice of Allowability

Application No.

10/743,591

Examiner

Thu Nguyen

Applicant(s)

FRIES ET AL.

Art Unit

3661

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--  
All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Amendment filed on November 28, 2006 & the enclosed examiner's amendment.
2. ☒ The allowed claim(s) is/are 1-5, 7-17, 23-25, 27-32 (now renumbered as claims 1-25).
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some\* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☒ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_.
- (b) ☒ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

## Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08),  
Paper No./Mail Date \_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_

### EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. This examiner's amendment amends claim 1, 29-32 in conformance with the remarks on page 14, 3<sup>rd</sup> paragraph of the amendment submitted on November 28, 2006 in which claim 6 is incorporated to claim 1 and claims 29-32 are reinstated from the canceled claims 19-22. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

The application has been amended as follows:

**In the claim:**

Please replace claim 1 with the following:

1. (Currently Amended) A train detection system for detecting the presence and/or position of a railway vehicle within a detection area of a railroad track, the railroad track having a pair of rails and an identified impedance within the detection area, and wherein the presence and/or position of the railway vehicle within the detection area changes the impedance of the track, said train detection system comprising:

a first transmitter connected to the rails of the railroad track for transmitting along the rails a first signal having a predetermined magnitude and a predetermined operating frequency;

a receiver connected to the rails for receiving the first signal;

a first data acquisition unit coupled to the first transmitter and the receiver and responsive to the transmitted first signal and the received first signal to generate first

multiplexed analog signal representing the transmitted first signal and the received first signal, wherein the first data acquisition unit includes:

a first feedback circuit for detecting a first transmitted voltage signal applied to the rails via the first transmitter, a first current signal transmitted along the rails via the first transmitter, and a first received voltage signal received by the receiver;

a first filter coupled to the first feedback circuit for filtering the detected first transmitted voltage signal, the detected first transmitted current signal, and the detected first received voltage signal; and

a first multiplexer coupled to the first filter for multiplexing the filtered first transmitted voltage signal, the filtered first current signal, and the filtered first received voltage signal to generate the first multiplexed analog signals, and wherein the processor calculates the impedance in the approach detection area as a function of the difference between first transmitted voltage signal and the first received voltage signal, and the first transmitted current signal;

a first converter for converting the first multiplexed analog signal into a plurality of first digital signals corresponding to the transmitted first signal and the received first signal; and

a processor responsive to the first digital signals for processing the first digital signals to determine the frequency and magnitude of the transmitted first signal and the received first signal.

In claim 29, line 1, replace "claim 18" with - claim 28 -

In claim 30, line 1, replace "claim 18" with - claim 28 -

In claim 31, line 1, replace "claim 18" with - claim 28 -

In claim 32, line 1, replace "claim 21" with - claim 31 --

### **Drawings**

2. Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### **Specification**

On page 4 of the Amendment filed on February 28, 2006, the applicant mistakenly requests replacing paragraph [0077] with a new paragraph. The replacement requested should be applied to paragraph [0074] instead. Therefore, the examiner requests that paragraph [0077] be remained as originally filed. Paragraph [0074] should be replaced with the amended specification stated on page 2 of the amendment submitted on November 28, 2006.

### **Reasons for Allowance**

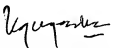
Refer to the Reasons for Allowance stated in the Office Action mailed on August 28, 2006.

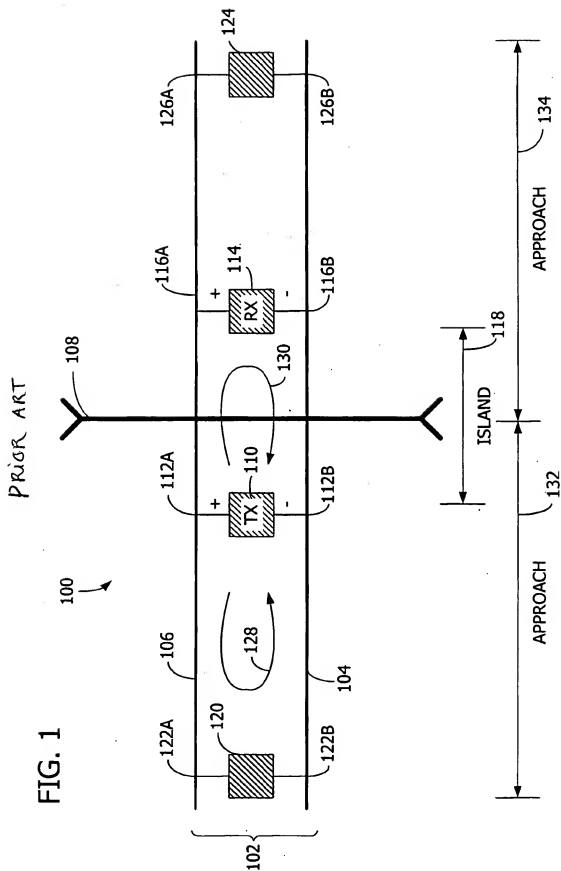
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thu Nguyen whose telephone number is (571) 272-6967. The examiner can normally be reached on T-F (7:30-6:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Black can be reached on (571) 272-6956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

December 23, 2006

  
**THU V. NGUYEN**  
**PRIMARY EXAMINER**





Complete and send this form, together with applicable fee(s), to: **Mail Stop ISSUE FEE**  
**Commissioner for Patents**  
**P.O. Box 1450**  
**Alexandria, Virginia 22313-1450**  
 or **Fax (571)-273-2885**

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

321 7590 12/29/2006

SENNIGER POWERS  
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**Certificate of Mailing or Transmission**  
 I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

Melody M. Mammen (Depositor's name)  
 March 20, 2007 (Date)

APPLICATION NO.	FILING DATE	FIRST NAME INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/743,591	12/22/2003	Jeff Fries	133197/GETS 5319.1	7577

TITLE OF INVENTION: DIGITAL TRAIN SYSTEM FOR AUTOMATICALLY DETECTING TRAINS APPROACHING A CROSSING

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1400	\$300	\$0	\$1700	03/29/2007

EXAMINER	ART UNIT	CLASS-SUBCLASS
NGUYEN, THU V	3661	701-019000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. Use of a Customer Number is required.

2. For printing on the patent front page, list

(1) the names of up to 3 registered patent attorneys or agents OR, alternatively,

(2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 Senniger Powers

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3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

General Electric Company

(B) RESIDENCE: (CITY AND STATE OR COUNTRY)

Schenectady, New York

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☒ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

☒ Issue Fee

☐ Publication Fee (No small entity discount permitted)

☐ Advance Order - # of Copies

4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)

☐ A check is enclosed.

☐ Payment by credit card. Form PTO-2038 is attached.

☒ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number 07-0846 (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.

☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant, a registered attorney or agent, or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature Frank R. Agovino  
 Typed or printed name Frank R. Agovino

Date March 20, 2007  
 Registration No. 27,416

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or any suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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